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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/863,948 05/23/91 HYNES

J 16072-149

MM91/1031

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WOODARD, EMHARDT, NAUGHTON, MORIARTY AND
BANK ONE CENTER/TOWER
111 MONUMENT CIRCLE, SUITE 3700
INDIANAPOLIS IN 46204-5137

EXAMINER

FIGUEROA, F

ART UNIT

PAPER NUMBER

2833

DATE MAILED:

10/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/863,948

Applicant(s)

HYNES ET AL.

Examiner

Felix O. Figueroa

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the length of the posts being greater than the diameter of the solder ball (as required by claim 6) and the length of the post being equal to the thickness of the fusing interface (as required by claim 20).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the length of the posts being greater than the diameter of the solder ball (as required by claim 6) and the length of the post being equal to the thickness of the fusing interface (as required by claim 20), must be shown or the features canceled from the claims. No new matter should be entered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: 32 (as mentioned in page 7 line 16, for example), 50 (as mentioned in page 9 line 10, for example). Correction is required.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "36" has been used to designate both the conical surface and the first major surface. See Figs. 2 and 4.

Claim Objections

Claim 12 is objected to because of the following informalities: In line 6, "a" should be --the--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 and 21-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 7, "the respective apertures" lacks antecedent basis.

In claim 3 line 2, it is unclear what "substantially right circular cylindrical in shape" means.

In claim 6 line 1, "the length" lacks antecedent basis. In line 2, "the diameter" lacks antecedent basis.

In claim 7 line 1, "the length" lacks antecedent basis. In line 2, "the diameter" lacks antecedent basis.

In claim 21, "the surface" lacks antecedent basis.

The scope of claim 22 is indefinite because there is an inconsistency within the claims. Claim 21, from which they depend, indicates that the subcombination, a method for producing an electrical connector, is being claimed. However, later claim 22 contain positive limitations directed toward a second electronic device, suggesting that applicant intends to claim the combination of a method for producing an electrical connector and a second electronic device. Applicant is required to clarify what subject matter the

claims are intended to be drawn to and the language of the claim must be amended to be consistent with this intent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 2, 10, 11 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Pei et al. (US 5,997,317).

Pei discloses (in Fig.8) an electrical connector portion (5) comprising an insulating substrate (52) having a first major face (521) and an oppositely disposed second major face; a plurality of non-recessed apertures extending from the first major surface to the second major surface; a plurality of elongated electrically conductive members (51) extending through the respective aperture; and a plurality of reflowable electrical conductors (23) disposed adjacent the first major surface, the elongated conductors extending into a respective reflowable conductor. Pei also discloses the elongated conductor extending substantially beyond the first major surface.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei et al.

Pei discloses substantially the claimed invention except for the specific shape of the apertures. However, it would have been an obvious matter of design choice to elect

a specific shape, since applicant has not disclosed that such shape solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well independently from the shape of the aperture.

Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei et al.

Pei discloses (in Fig.8) substantially the claimed invention except for the plurality of insulating posts. Pei teaches (in Fig.5) a plurality of insulating posts extending from a first major surface (12) to limit the position of the reflowable conductors (23). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the first major surface with a plurality of insulating posts, as taught by Pei, to limit the position of the reflowable conductors.

Regarding claim 6, Pei discloses the claimed invention except for length of the posts. It would have been an obvious matter of design choice to form the posts having a length greater than the diameter of a solder ball, since such modification would have involved a mere change in the size of a component. A change in size is recognized as being within the level of ordinary skill in the art. *In re rose*, 105 USPQ 237 (CCPA 1955).

Regarding claims 8 and 9, Pei discloses substantially the claimed invention except for the shape of the specific shapes of the posts. However, it would have been an obvious matter of design choice to form the post in different shapes, since applicant has not disclosed that such modification solves any stated problem or is for any

particular purpose and it appears that the invention would perform equally well with the posts shown by Pei.

Claims 12-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei et al in view of Swamy et al. (US 5,613,033).

Pei discloses substantially the claimed invention except for plurality of insulating plates. Swamy teaches a plurality of insulating plates stacked on top of a PCB to minimize PCB interconnect area. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to form a plurality of insulating plates, as taught by Swamy, to minimize PCP interconnect area.

Regarding claims 15 and 16, see discussion on claims 8 and 9.

Regarding claim 20, Pei, as modified, discloses the claimed invention except for length of the posts. It would have been an obvious matter of design choice to form the posts having a length equal to the fusing interface thickness, since such modification would have involved a mere change in the size of a component. A change in size is recognized as being within the level of ordinary skill in the art. *In re rose*, 105 USPQ 237 (CCPA 1955).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shuey (US 5,975,921) discloses an electrical connector portion comprising an insulating substrate (22) having a first major face (lower surface) and an oppositely disposed second major face; a plurality of non-recessed apertures (24) extending from the first major surface to the second major surface; a plurality of

elongated electrically conductive members (18,20) extending through the respective aperture; and a plurality of reflowable electrical conductors (50) disposed adjacent the first major surface, the elongated conductors extending into a respective reflowable conductor. Shuey also discloses the elongated conductor extending substantially beyond the first major surface.

Hsiao et al. (US 6,231,367) discloses an electrical connector portion comprising an insulating substrate (8) having a first major face (lower surface) and an oppositely disposed second major face; a plurality of apertures (80) extending from the first major surface to the second major surface; a plurality of elongated electrically conductive members (81) extending through the respective aperture; and a plurality of reflowable electrical conductors (9) disposed adjacent the first major surface, the elongated conductors extending into a respective reflowable conductor. Hsiao also discloses the elongated conductor extending substantially beyond the first major surface.

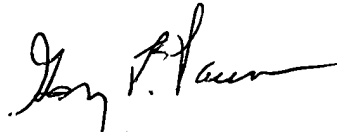
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felix O. Figueroa whose telephone number is (703) 308-0097. The examiner can normally be reached on Mon.-Fri., 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (703) 308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

ffr
October 29, 2001

A handwritten signature in black ink, appearing to read "Gary Paumen", written in a cursive style.

Gary Paumen
Primary Examiner